



Hysitron, Inc., Minneapolis, MN

U.S. Army Research Laboratory

## Portable Nanomechanical Test Instrumentation

### Phase III IMPACTS

- Over \$669K in DoD R&D funds.
- Over 700 units sold to date generating over \$26M in revenue.
- Private sector investors include Seagate, Xerox, and Dow Chemical.
- Current customers include The University of California at Berkeley, MIT, and General Electric.



Advanced materials are an integral part in the development of new technologies that can benefit the Army. Nanotechnology contributes to the creation of many of these materials, and continued improvements in nanomechanical characterization are key to further development in this field. Hysitron develops and produces instrumentation for testing at nanoscale that facilitates the development of next generation overcoats, diamond like coatings, composites, alloys, polymers, biomaterials, and biomimetic materials.

Hysitron's industry-leading instruments include the TriboIndenter® nanomechanical test instrument, the TriboScope® nanoindenter which can be added to commercial AFMs, and the Ubi 1® dedicated scanning nanoindenter. These high-

performance testing systems are based on patented three-plate capacitive transducer technology known for its sensitivity and stability, providing systematic access to quantitative data at nanoscale. Innovative *in-situ* imaging allows pre- and post-test scanning as well as test positioning with a resolution of better than 10nm.

Customers that benefited from the purchase of Hysitron equipment include DoD labs, National Laboratories, and academic institutions. The Army Research Laboratory studied advanced laser refractive coatings and dental materials while the Naval Research Laboratory worked with polymers, MEMS and self-cleaning materials. National Laboratory research at Los Alamos, Sandia, Lawrence Berkeley, and Lawrence Livermore included tests on MEMS, plutonium, biomaterials, and optical lens coatings.

Many laboratories in the private sector also invested in Hysitron instruments. Research examples include next generation overcoats at Seagate, paper and printer materials at Xerox, and polymers at Dow Chemical. The University of California at Berkeley, MIT, and General Electric also purchased Hysitron instruments. Nanoindentation will continue to be a valuable tool in developing materials that will benefit the safety of soldiers and all of us in our daily lives.